

$$1. \quad \overline{7}x - 42\overline{7}y + \overline{7}$$

$$7 \cancel{[x - 6y + 1]}$$

$$2. \quad \cancel{b}(\cancel{d^3} + 7) + (\cancel{d^3} + 7)$$

$$(b + 1)(d^3 + 7)$$

$$3. \quad \overline{8x^3} - \overline{24x^2} + \overline{7x} - \overline{21}$$

$8x^2 \quad 6x^2 \quad 7 \quad 7$

$$(8x^2 + 7)(x - 3) \quad \checkmark$$

$$4. \quad \overline{7z^2} - \overline{3xz} - \overline{7z} + \overline{3x}$$

$z \quad z \quad -1 \quad -1$

$$(z - 1)(7z - 3x) \quad \checkmark$$

$$5. \quad \overline{5p^2} - \overline{2pq} - \overline{10p} + \overline{4q}$$

$p \quad p \quad -2 \quad -2$

$$(p - 2)(5p - 2q) \quad \checkmark$$

Factor each polynomial completely, if possible.

6. $x^2 + 8x + 15$ 5, 3

$$(x + 5)(x + 3)$$

7. $x^2 - 5x - 3$

$$p.r.m = 3 + 1 = 4$$

$$3 - 1 = 2$$

Not 5

8. $p^2 + 6pq - 16q^2$ 8 2

$$(p + 8q)(p - 2q)$$

9. $\frac{2x^2}{2} + \frac{6x}{2} - \frac{56}{2}$

$$2(x^2 + 3x - 28) = 4$$

$$2(x + 7)(x - 4)$$

10. $20x^2 + 27x + 9$

2 1

2 16

(54)

9 1

(3 3)

if in doubt

choose
numbers

closest

$(5x + 3)(4x + 3)$

11. $-40x^3 + 58x^2 - 10x$

$-2x -2x -2x$

$(\frac{20x^2}{3} - 29x + 5)$
3 4 1 5

$-2x(5x - 1)(4x - 5)$



$$12. 15y^2 - 26y + 8$$

5 3 2 4

$$(5y - 2)(3y - 4)$$

$$13. x^2 - 14xy + 49y^2$$

7 7

$$(x - 7y)(x - 7y)$$

$$14. 6x^2 - 11x - 10$$

3 2 2 5

$$(3x + 2)(2x - 5)$$

$$15. 3x^3 + 14x^2 + 15x$$

x x x

$$3x^2 + 14x + 15$$

3 1 5 3

$$x(3x + 5)(x + 3)$$

$$16. x^3 + 27$$

$$\begin{array}{c} \text{X} \quad \text{X}^2 \quad 3 \quad 9 \\ \text{X} \quad \text{X}^2 \quad 3 \quad 9 \end{array}$$

$$(X+3)(X^2-3X+9)$$

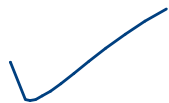
$$17. 9x^2 - 16$$

$$(3x-4)(3x+4)$$

$$18. x^4 - 16$$

$$(x^2+4)(x^2-4)$$

$$(x^2+4)(x+2)(x-2)$$



$$19. 16xy^2 - 9x$$

$$\overline{x} \quad \overline{x}$$

$$x/16y^2-9$$

$$x(4y-3)(4y+3)$$

$$20. (x+9)(x-3)=0$$

$$x = -9 \quad x = 3$$

$$21. x^2 + 10x - 24 = 0$$

12 2

$$(x+12)(x-2)=0$$

$$x = -12 \quad x = 2$$

$$22. 3x^2 + 16x = 12$$

$$-12$$

$$3x^2 + 16x - 12 = 0$$

$$(3x - 2)(4x + 6) \leadsto x = -6 \checkmark$$

$$3x = 2 \quad x = \frac{2}{3} \checkmark$$

$$23. \frac{3x^3}{x} - \frac{4x^2}{x} - \frac{7x}{x} = 0$$

$$x(3x^2 - 4x - 7) = 0$$

$$x(3x - 7)(x + 1) \quad x = -1 \checkmark$$

$$x = 0 \quad 3x = 7$$

$$\checkmark \quad x = \frac{7}{3} \checkmark$$

24. $x(x+15)=0$

$x=0$ $x=-15$

25. $x^2+2x=0$

$x(x+2)$

↓

$x=0$



↓

$x=-2$

